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MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C.
P.O. BOX 398
AUSTIN, TX 78767-0398

EXAMINER
LU, CHARLES EDWARD

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/623,406	HSIUNG ET AL.
Office Action Summary	Examiner	Art Unit	
	Charles E. Lu	2161	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _01 March 2007_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This Action is in response to the remarks dated 3/1/2007. Claims 1-20 are pending, and no claims were amended. Reconsideration was requested. Claims 1-20 are rejected.

Response to Amendments/Response to Arguments

1. "Section 101 Rejection:"

Applicant's remarks have been fully considered and are persuasive. Therefore, the 35 U.S.C. 101 rejection for claim 8 is withdrawn.

2. "Section 112, First Paragraph Rejection:"

Applicant's remarks have been fully considered and are persuasive. Therefore, the 35 U.S.C. 112, first paragraph rejection for claims 1-20 is withdrawn.

3. "Section 112, Second Paragraph Rejection:"

Applicant's remarks have been fully considered and are persuasive. Therefore, the 35 U.S.C. 112, second paragraph rejection for claims 1-20 is withdrawn.

4. "Section 103(a) Rejections:"

"Moore in view of Lomet fails to teach or suggest generating a storage checkpoint of file system data of the production database" (Applicant's Remarks, p. 6).

The examiner respectfully disagrees. Moore teaches generating a checkpoint of data of a production database ("The checkpoint service replicates the state data and stores it in the replica state database", para. 0019). This checkpoint service clearly generates a checkpoint[1] of database data on a production (primary) database for storage on a secondary database (see fig. 2, #82).

As to "file system data," it is noted that "file system data" is given its broadest reasonable interpretation in light of the specification. In this case, "file system data" is interpreted to mean, "data associated with a file system."

Though Moore does not expressly teach the "file system data," Moore does suggest the "file system data" at least because 1) data is stored on a database (fig. 2), and databases can be stored on a file system and 2) Moore states that the system can be implemented on any computer system (para. 0013) and in the knowledge generally available to one of ordinary skill in the art at the time of the invention, this may include implementation on a conventional computer system with a file system for storing the data.

Lomet teaches a conventional computer system at the time the invention was made, in which a database resides in a disk drive (e.g., hard and floppy), or a read/write CD-ROM (col. 9, ll. 6-11). In order to read/write data into these storage media, especially on a database system using a conventional operating system such as Windows or UNIX (col. 9, ll. 18-24) the database must be on a file system[2]. Lomet was

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[1] Checkpoint - "A file containing information that describes the state of the system at a particular time." Microsoft Computer Dictionary.
[2] File System – "In an operating system, the overall structure in which files are named, stored, and organized." Microsoft Computer Dictionary.

used to ensure that the database of the combination of Moore is on a file system to meet the limitation of "file system data."

Therefore, the examiner has not mistaken "any data stored in memory" for "file system data."

The motivation for combining Lomet with Moore is seen in the previous Action. Furthermore, it is noted that the motivation to combine can come from the knowledge generally available to one of ordinary skill in the art. Any hindsight reasoning used in this combination is proper, because only the knowledge which was within the level of one of ordinary skill at the time the claimed invention was made was used, and does not include knowledge gleaned only from the applicant's disclosure. See above discussion.

"Moore in view of Lomet fails to teach or suggest generating a database clone, wherein the data of the database clone comprises data from the storage checkpoint" *(Applicant's Remarks, p. 8).*

The examiner respectfully disagrees. As to "database clone," it is noted that this term is given its plain and ordinary meaning. Paragraph 0019 clearly teaches the database clone, because "The checkpoint service (82) replicates the state data and stores it in the replica state database 80." Note that the "replication" is reasonably interpreted to be "cloning." Furthermore, the "clone," collectively treated as #54 in the previous Action (p. 8, l. 9), is a database clone of #52 – both entities contain the same databases, including respective replica databases (fig. 2), and the checkpointing service

#82 ensures that both entities contain the same data. Therefore, Moore teaches the claimed database clone.

Moore further teaches wherein the data of the database clone comprises data from the storage checkpoint. "The checkpoint service replicates the state data and stores it in the replica state database" (para. 0019). Note that the replicated data is a checkpoint, and that the checkpoint is stored in the database clone #54 as seen in the previous Action.

The examiner recognizes that the checkpointing service is not the checkpoint *per se,* and was never interpreted as such in the previous Action. Rather, the checkpoint is the replicated data that the checkpoint service generates (by "using" the checkpointing service on para. 0019, see above discussion). Applicants argue that Moore does not use the term "checkpoint data." However, Applicant should be aware that the replicated data generated by a checkpointing service on p. 0019, line 10, is reasonably interpreted to be the checkpoint data. Thus, the "assumption" of the Applicants on p. 8, second paragraph, line 9, is incorrect, and the replica database does comprise data from the storage checkpoint for the above reasons.

"Moore in view of Lomet fails to teach or suggest loading new data to the database clone, wherein said load updates the storage checkpoint, and wherein the production database is available for access by users during said load" (bottom of p. 8).

The examiner respectfully disagrees. Upgrading the application on the new primary system clearly loads new data to the database clone. Applicants should

recognize that applications are made of data and therefore upgrading to a "new

application" necessitates loading new data. As to "database clone," Moore teaches

loading to the clone as seen in the previous Action and para. 0022. Applicants argue

"application updates do not relate to updating data in databases" but it should be

recognized that "updating data in databases" is not claimed. In the claim, data is loaded

to the database clone[3]. "Database clones" are interpreted using the plain and ordinary

meaning as "clones that are associated with databases." Limitations from the

specification are not read into the claim.

As to the argument on p. 9, second paragraph, it is noted that Moore was used to

describe the "refresh mechanism" and the Lomet was used to provide the teaching of

"wherein the production database is available for access by users during the loading." It

is noted that the combination would teach the claimed subject matter. See the previous

Action. The teaching of a "database clone" is provided at least in Moore, as discussed

above. Similarly, the teaching of the "load updating the storage checkpoint" is also

provided in Moore. See the previous Action.

"Moore in view of Lomet fails to teach or suggest switching the storage

checkpoint to be the file system data for the production database" (Remarks, p. 9, last

paragraph).

The examiner respectfully disagrees. Moore clearly describes a "refresh

mechanism" during e.g., handling of faults and failures because, in the handling, the

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[3] The claim does not specifically recite, for example, which database(s) the "database clone" is a clone of.

secondary controller takes over for the primary controller, thus "refreshing" (making fresh again) the control and the data in the database. Note that the Moore clearly reads on every element of the refresh mechanism, as discussed in this action. It is also noted that "refreshing" is given its broadest reasonable interpretation. Limitations from the specification that present other specific details on the "refresh mechanism" are not read into the claims. As to "file system data," the "file system data" involves a combination with Lomet (see above). Note that after the switch, the primary becomes the new secondary, and the secondary becomes the new primary. Therefore, the "production database" after the switch is the secondary.

<p align="center">*   *   *</p>

Arguments regarding other claims depend on the arguments for a parent claim(s) discussed above. For the above reasons, the rejection of the claims under 35 U.S.C. 103(a) is maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-3, 5-11, 13-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al (Pub. No. 2003/0092438) in view of Lomet (U.S. Patent 6,578,041).

As to claim 1, Moore teaches the following claimed subject matter:

For at least this reason, "database clone" is given its broadest reasonable interpretation. See above.

One or more hosts (see fig. 2);

A production database (primary database, fig. 2, #52);

A refresh mechanism (software) including generating a checkpoint of the

production database (fig. 2, #82, para. 0019, using "checkpointing service");

Generating a database clone (see "replica", "same version", para. 0019), wherein

data of the database clone comprises data from the storage checkpoint (replicating the

state data, para. 0019, note that the checkpointed data is sent to and stored within the

"clone" #54);

Switching the storage checkpoint to the production database (secondary

assuming control of the database therefore being the new production database, para.

0020); Note that since the secondary now assumes control as a primary (production)

database, the storage checkpoint has been switched;

Loading new data to the database clone (upgrading the application, para. 0022

on the new primary system) wherein the load updates the storage checkpoint (loading

new data updates the storage checkpoint so that another checkpoint (#82) can be made

later, e.g., fig. 4, #122);

Moore does not expressly teach wherein the production database is available for

access by users during the loading.

However, Lomet teaches wherein a database is available for access during

loading to a clone. Lomet sets up the databases as a production (primary) database

and a cloned database (fig. 2). Lomet states that a database available for access

during backup is conventional (on-line backup, col. 3, ll. 25-30) and provides an

improved method for coping data from an active, stable database to a backup database

while update activity continues (col. 6, ll. 32-42, 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Moore with the above, such that the production

database is available for access during the loading. The motivation would have been to

achieve high availability, as taught by Lomet (col. 3, ll. 35-40).

Moore does not expressly teach, "file system data."

However, Moore suggests file system data because of the use of databases (fig.

2) and because the system can be implemented on any computer system (para. 0013).

Furthermore, Lomet teaches a computer system which works on file system data (see

fig. 2 and text starting from col. 8, l. 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to further modify Moore and Lomet with the above, such

that the system operates on file system data, generating the storage checkpoint is "of

file system data," and, finally, switching the storage checkpoint switches to be "the file

system data" as claimed. The motivation would have been to operate on a computer

(Moore, para. 0013) with a file system (Lomet, col. 9, ll. 4-24), and to apply Moore to a

computer system other than a wireless cellular system.

As to claim 2, Moore, as modified by Lomet, teaches performing post-

processing on the clone prior to the switching (e.g., copying the data to the clone after a

stable state is known, para. 0019).

As to claim 3, Moore, as modified by Lomet, teaches stopping the production database prior to the switch (fig. 3, #107) and starting the production database after the switch (para. 0020, fig. 4, #124). Note that the production database after the switch is taken to be the cloned database that now operates as a primary database.

As to claim 5, Moore, as modified by Lomet, teaches wherein the generated database clone includes references to data (e.g., the replica state databases are logical pointers to a single physical database, para. 0019).

Moore and Lomet do not expressly teach references to data in the production database.

However, Moore suggests that the references could be used for data in the production database (fig. 2, #52, para. 0018-0020).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moore and Lomet with the above, such that the clone includes references (pointers) to data in the production database. The motivation would have been to adapt to the particular requirements of the database system, as taught by Moore (para. 0019).

As to claim 6, Moore, as modified by Lomet, teaches wherein the refresh mechanism is configured to perform the loading of new data to the clone on a different host machine than the host machine hosting the production database (para. 0018-0020, fig. 2).

As to claim 7, Moore, as modified by Lomet, teaches performing the loading of new data to the database clone on a host machine hosting the production database (fig. 2, para. 0018-0020).

Claims 8-11, 13-17, 19 and 20 are directed to a system, method, or computer readable medium claiming substantially the same invention as system claims 1, 2, 3, 5, and 6. Therefore, claims 8-11, 13-17, 19 and 20 are rejected based upon the same reasoning as stated above in the rejection of claims 1, 2, 3, 5, and 6.

6. Claims 4, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al (Pub. No. 2003/0092438) in view of Lomet (U.S. Patent 6,578,041) further in view of Applicant Admitted Prior Art (AAPA).

As to claim 4, Moore and Lomet do not expressly teach wherein the production database is a data warehouse.

However, AAPA teaches that a data warehouse is a database and may be a consolidation of other databases (p. 1, ll. 13-15). Moore and Lomet both teach production databases, as discussed above.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moore and Lomet with the above teachings, such that the production database is a data warehouse. The motivation would have been to facilitate business decisions, as taught by AAPA (p. 1, ll. 14-19).

Claims 12 and 18 are directed to a method, or computer readable medium claiming substantially the same invention as system claim 4. Therefore, claims 12 and

18 are rejected based upon the same reasoning as stated above in the rejection of

claim 4.

Conclusion

7. Applicant's arguments were fully considered but were not persuasive.

Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Charles E. Lu whose telephone number is (571) 272-

8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Apu Mofiz can be reached at (571) 272-4080. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

CL
Assistant Examiner
AU 2161
4/26/2007

/CDL/

APU MOFIZ
SUPERVISORY PATENT EXAMINER